



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,213	06/19/2001	James Battle	108339-00027	9858
4372	7590	10/28/2005	EXAMINER	
ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			PIZARRO, RICARDO M	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/883,213

Applicant(s)

BATTLE ET AL.

Examiner

Ricardo Pizarro

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 8, 10-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 9, 15, 16 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 6 " groups packet data into cell" is not understood. Is applicant referring to packet data being segmented into cells? Or referring to a plurality of packets being grouped into a cell?

In claim 1 line 9 " separates stored cells" is not understood . Are cells being separated from each other? are cells being read out from the memory? What is meant by separating?

In claim 10, it is unclear what queues are being referred to in the context of parent claim 1.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 , as best understood, are rejected under 35 U.S.C.

103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No.6,658,017 ( Yamamoto)

Regarding claim 1, Chen discloses a Hybrid ATM/TDM transport over a common ring comprising an ingress port interface receiving portions of a data packet (Ingress port interface located on node 14b at 16b in Fig. 1) ; an egress port interface ( Egress port interface located at node 14c at 16c in Fig. 1) connected to ingress ports through an ingress ring (ring 12 in Fig. 1) ; a cell packer, where the cell packer groups packet data into cells ( Cell packer function performed by Segmentation and reassembly device 20b); and a cell unpacker, where the cell unpacker separates stored cells before releasing the cells to an egress port ( Cell unpacker function performed by Segmentation and Reassembly 20 c) .

Chen does not specifically disclose a packet pool memory to store cells in each node of the ring, as in claim 1.

However Yamamoto discloses a Communication network and a node device , comprising a ring network ( Rings a-d in Fig. 7) including a plurality of nodes ( 701 – 704 in Fig. 7) each containing a pool memory for the storage of packets ( Plurality of buffers 709-712 in Fig. 7 ,col 6 lines 46-47, col 7 lines 7-10) , as in claim 1.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen by providing the pool means as disclosed by Yamamoto to provide adequate storage means to the Chen system.

The motivation to do so is to obtain a device that can provide an improved way to forward data in a bus ring

Regarding claim 2, comprising a plurality of egress port interfaces ( 16b and 16 c in Fig. 1) and wherein said bus ring is configured such that outputs of one of the plurality of interfaces are physically connected to inputs of an adjacent one of the plurality of egress port interfaces ( outputs are connected to inputs of an adjacent egress port interface in Fig. 1 i.e. 16a and 16b)

Regarding claim 3 each of the plurality of egress port interfaces has a same physical layout ( egress port interfaces 16 b and 16 c contain the same physical elements –layout- in Fig.1)

4. Claim 5 , as best understood ,is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No. 6,658,017 ( Yamamoto) and further in view of US patent No. 6,862,292 ( Bass)

Chen and Yamamoto do not specifically disclose an egress scheduler communicating with a cell unpacker, where the egress scheduler determines which packet data should be retrieved from the packet pool memory according to priority rules.

However Bass discloses a method for network processor scheduling outputs, comprising an egress scheduler ( Traffic Management scheduler –Egress scheduler 40 in Fig. 1, col 6 lines 21-22) in communication with a cell unpacker ( Substrate 10 where scheduler is embedded is in communication with framer 38 in Fig.1), where the egress scheduler determines which packet data should be retrieved from the packet pool

memory ( SRAM devices in Fig. 1) according to priority rules ( col 8 lines 40—43 and 53-55)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen and Yamamoto by providing the egress scheduler as in Bass to have a more fair read out of cells in the device.

The motivation to do so is to obtain an improved method for reading out the distribution of information in the device.

5. Claims 7 and 8, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No.6,658,017 ( Yamamoto)and in view of US patent no. 6,862,292 ( Bass) and further in view of US patent No. 6,134,217 ( Stilliadis)

Chen, Yamamoto and Bass do not specifically disclose the priority rules comprising a deficit round robin algorithm, as in claim 7; the priority rules comprising a weighted round robin algorithm, as in claim 8.

However Stilliadis teaches a Traffic scheduling system disclosing priority rules comprising a deficit round robin algorithm( col 3 line 37) , as in claim 7; the priority rules comprising a weighted round robin algorithm( col 3 line 37), as in claim 8.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen, Yamamoto and Bass the priority rules as disclosed by Stilliadis to obtain a more fair scheduling in the system.

The motivation to do so is to obtain work conserving memory unit ( Stilliadis, col 3 line 39).

6. Claim 10 ,as best understood ,is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No.6,658,017 ( Yamamoto) and further in view of US patent No. 6,243,359 ( Roy)

Chen and Yamamoto do not specifically disclose queues configured to determine if a class of service in the queue has reached a limit and purge the packet when the queue has reached the limit, as in claim 10.

However Roy discloses queues configured to determine if a class of service in the queue has reached a limit and purge the packet when the queue has reached the limit ( col 7 lines 45-52), as in claim 10.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen and Yamamoto by providing a class of service queue that discards packets after a limit has been reached to better manage traffic in the network via queuing structures.

The motivation to do is to obtain an apparatus capable of improving the performance of traffic in the network.

7. Claims 11 and 12 , as best understood ,are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No. 6,658,017 ( Yamamoto)

Chen and Yamamoto do not disclose the packer is configured to wait until a cell is filled before sending the cell to the packet pool memory, as in claim 11; wherein a cell length of the cell is 640 bits, as in claim 12.

However it would have been obvious that the cell had to be filled before transmission to the pool memory in order to have the header and payload information completed. In regard to the number of bits in the cell, it would have been obvious as a matter of design choice since applicant has failed to show that the number of bits in the cells would clearly affect the performance of the device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen and Yamamoto by having the packet designed to wait for the completion of the cell in order to have all the needed information in the packet.

8. Claim 13, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent No. 6,501,758 (Chen) in view of US No. 6,658,017 (Yamamoto) and further in view of US patent No. 5,612,964 (Haraszti)

Chen and Yamamoto do not specifically disclose the device comprising a memory error detector and means to recover from an error.

However Haraszti discloses a memory and method comprising a memory error detector and a means for recovering from a detected memory error (Error detector and corrector 80 in Fig. 5, col 8 lines 40-44)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chen and Yamamoto by providing the memory error detection and correction means as in Haraszti to have a better performance in the device.

The motivation to do so is to obtain a more reliable memory unit.



Art Unit: 2661

9. Claim 14, as best understood ,are rejected under 35 U.S.C.

103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No.6,658,017 ( Yamamoto) and further in view of US patent No. 6,658,016 (Dai)

Chen and Yamamoto do not disclose a switch fabric having a memory management unit, as in claim 14.

However Dai discloses a packet switching fabric ( Switching fabric 10 in Fig. 1) with a memory management device ( memory management 42 in Fig. 1)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the memory management unit to a network switch fabric to improve the transfer of packets within the unit.

The motivation to do so is to obtain a switching fabric which provides reduced delays in packet transfer operations and therefore faster switching ( Dai, col 3 lines 18-20) .

10.Claim 17, as best understood , are rejected under 35 U.S.C.

103(a) as being unpatentable over US patent No. 6,501,758 ( Chen) in view of US No.6,658,017 ( Yamamoto) and further in view of US patent No. 6,658,016 (Dai)

Chen and Yamamoto do no disclose a message ring connected to ingress ports of the fabric, used to pass message among stations, as in claim 17.

However Dai discloses a Packet switching fabric having a message ring ( Ring 20 in Fig. 1) connected to ingress ports of the fabric , used to pass messages among stations ( col 6 lines 39-41)

Art Unit: 2661

Therefore it would have been obvious to one of ordinary skill in the art to modify Chen and Yamamoto by adding a message ring as disclosed by Dai to have the capability of sending messages through the ring.

The motivation to do so to obtain a switching fabric with an additional way of connecting stations and passing messages among stations.

***Allowable Subject Matter***

11. Claims 4, 6, 9, 15-16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

***Conclusion***

12. Office Action has been written **as best understood** by the Examiner at the time of the examination. See 112 rejection.

**13. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(571) 273-8300

(for formal communications intended for entry, for informal or draft communications, please label "PROPOSED" or "DRAFT")

Art Unit: 2661


Hand-delivered responses should be brought to 220 South 20<sup>th</sup> Street, Crystal Plaza Two, Lobby, Room 1B03, Arlington, Va 22202 (Customer Window).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ricardo Pizarro** whose telephone number is (571) 272-3077. The examiner can normally be reached on Monday-Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Hassan Kizou** can be reached on (571) 272-3088

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 16, 2005  
Ricardo Pizarro



HASSAN KIZOU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600